

[Abstract]

There is provided a method of producing hydrogen gas serving as fuel for a portable fuel cell, whereby hydrogen gas can be provided easily, safely, and at a low cost. To that end, the method of producing hydrogen gas comprises the steps of causing friction and mechanical fracture accompanying the friction to occur to a metallic material under water and increasing thereby chemical reactivity of atoms of the metallic material, in close proximity of the surface thereof; wherein water molecules are decomposed by accelerating corrosion reaction of water with the metallic material. Further, for the metallic material, an aluminum or aluminum alloy material is used as industrial waste including refuse and cutting chips (curls) of an industrial aluminum material. Meanwhile, pure water not substantially containing ionic impurities and organic molecules is used for the water.